Soil Descriptions - Non Technical

GP--Pits, Gravel-Udipsamments Complex

Component Description

Pits, gravel
Extent: 80 percent of the unit

Gravel pits are areas that have been mined for gravel or sand. This map unit is actively being mined or is an abandoned pit. This component of the map unit is too variable to assign interpretations. On-site investigations are needed.

Udipsamments
Extent: 20 percent of the unit

Udipsamments are areas within the map unit that would meet the definition of soil, and are areas of the pit where natural soil profiles still exist. This component of the map unit is too variable to assign interpretations. On-site investigations are needed.

J1A--Parnell Silty Clay Loam, Depressional, 0 To 1 Percent Slopes

Component Description

Parnel, depressional and similar soils
Extent: 85 to 95 percent of the unit
Geomorphic description:
Depression on moraine
Depression on lake plain
Depression on till plain
Slope range: 0 to 1 percent
Surface layer texture: Silty clay loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Very poorly drained
Parent material:
Till
Flooding: None
Wet soil moisture status is highest (depth, months):
At the surface March April
Wet soil moisture status is lowest (depth, months):
2.0 feet February August
Ponding does not occur (months):
January February May June July August September October November December
Ponding is deepest (depth, months):
1.0 foot April
Available water capacity to a depth of 60 inches: 10.2 inches
Content of organic matter in the upper 10 inches: 6.0 percent
Typical profile:
A1,A2--0 to 22 inches; silty clay loam
Btg--22 to 55 inches; silty clay
BCg--55 to 80 inches; silty clay loam

J2A--La Prairie Loam, 0 To 2 Percent Slopes, Occasionally Flooded

Component Description

La prairie, occasional and similar soils
Extent: 80 to 95 percent of the unit
Geomorphic description:
Flat on flood plain
Slope range: 0 to 2 percent

Surface layer texture: Loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Moderately well drained
Parent material:
Alluvium
Flooding does not occur (months):
January February September October November December
Flooding is most likely (frequency, months):
Occasional March April May June July August
Wet soil moisture status is highest (depth, months):
2.5 feet April
Wet soil moisture status is lowest (depth, months):
More than 6.7 feet February August
Ponding: None
Available water capacity to a depth of 60 inches: 11.9 inches
Content of organic matter in the upper 10 inches: 5.0 percent
Typical profile:
Ap--0 to 9 inches; loam
A--9 to 38 inches; loam
Bw--38 to 50 inches; loam
C--50 to 60 inches; loam

J3A--Arveson Sandy Loam, 0 To 2 Percent Slopes

Component Description

Arveson and similar soils
Extent: 70 to 90 percent of the unit
Geomorphic description:
Rim on depression on outwash plain
Flat on outwash plain
Drainageway on outwash plain
Slope range: 0 to 2 percent
Surface layer texture: Sandy loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Poorly drained
Parent material:
Outwash
Flooding: None
Wet soil moisture status is highest (depth, months):
0.5 foot April
Wet soil moisture status is lowest (depth, months):
2.0 feet August
Ponding: None
Available water capacity to a depth of 60 inches: 7.6 inches
Content of organic matter in the upper 10 inches: 6.5 percent
Typical profile:
Ap--0 to 10 inches; sandy loam
Ak--10 to 22 inches; sandy loam
Bkg--22 to 35 inches; sandy loam
2Cg--35 to 80 inches; sand

J4A--Rockwell Loam, 0 To 2 Percent Slopes

Component Description

Rockwell and similar soils
Extent: 80 to 95 percent of the unit
Geomorphic description:
Flat on outwash plain
Rim on depression on outwash plain
Drainageway on outwash plain
Slope range: 0 to 2 percent
Surface layer texture: Loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Poorly drained
Parent material:
Outwash over lacustrine deposits
Outwash over till

Flooding: None
Wet soil moisture status is highest (depth, months):
0.5 foot April
Wet soil moisture status is lowest (depth, months):
2.0 feet August
Ponding: None
Available water capacity to a depth of 60 inches: 11.1 inches
Content of organic matter in the upper 10 inches: 5.6 percent
Typical profile:
Ap--0 to 9 inches; loam
Ak--9 to 16 inches; loam
Bg--16 to 25 inches; sandy loam
2Cg--25 to 45 inches; stratified silt loam to silty clay loam
3Cg--45 to 80 inches; clay loam

J5A--Fossum Sandy Loam, 0 To 2 Percent Slopes

Component Description

Fossum and similar soils
Extent: 75 to 95 percent of the unit
Geomorphic description:
Rim on depression on outwash plain
Flat on outwash plain
Drainageway on outwash plain
Slope range: 0 to 2 percent
Surface layer texture: Sandy loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Poorly drained
Parent material:
Outwash
Flooding: None
Wet soil moisture status is highest (depth, months):
0.5 foot April
Wet soil moisture status is lowest (depth, months):
2.0 feet August
Ponding: None
Available water capacity to a depth of 60 inches: 5.3 inches
Content of organic matter in the upper 10 inches: 4.5 percent
Typical profile:
Ap,A1--0 to 13 inches; sandy loam
A2--13 to 21 inches; sand
Cg--21 to 80 inches; fine sand

J6A--Mcdonaldsville Silty Clay, 0 To 2 Percent Slopes

Component Description

Mcdonaldsville and similar soils
Extent: 80 to 95 percent of the unit
Geomorphic description:
Flat on outwash plain
Drainageway on outwash plain
Slope range: 0 to 2 percent
Surface layer texture: Silty clay
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Poorly drained
Parent material:
Lacustrine deposits over outwash
Flooding: None
Wet soil moisture status is highest (depth, months):
0.5 foot April
Wet soil moisture status is lowest (depth, months):
2.0 feet August
Ponding: None
Available water capacity to a depth of 60 inches: 8.5 inches
Content of organic matter in the upper 10 inches: 6.0 percent
Typical profile:
Ap,A1--0 to 17 inches; silty clay
Bw,BC--17 to 36 inches; silty clay

2C--36 to 80 inches; sand

J7A--Sverdrup Sandy Loam, 0 To 2 Percent Slopes

Component Description

Sverdrup and similar soils
Extent: 75 to 95 percent of the unit
Geomorphic description:
Flat on outwash plain
Slope range: 0 to 2 percent
Surface layer texture: Sandy loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Well drained
Parent material:
Outwash
Flooding: None
Depth to wet soil moisture status: More than 6.7 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 5.5 inches
Content of organic matter in the upper 10 inches: 2.5 percent
Typical profile:
Ap,A--0 to 12 inches; sandy loam
Bw--12 to 26 inches; sandy loam
2C--26 to 80 inches; sand

J7B--Sverdrup Sandy Loam, 2 To 6 Percent Slopes

Component Description

Sverdrup and similar soils
Extent: 85 to 95 percent of the unit
Geomorphic description:
Hill on outwash plain
Position on landform:
Summit
Backslope
Shoulder
Slope range: 2 to 6 percent
Surface layer texture: Sandy loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Well drained
Parent material:
Outwash
Flooding: None
Depth to wet soil moisture status: More than 6.7 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 5.5 inches
Content of organic matter in the upper 10 inches: 2.5 percent
Typical profile:
Ap,A--0 to 12 inches; sandy loam
Bw--12 to 26 inches; sandy loam
2C--26 to 80 inches; sand

J8A--Egeland Sandy Loam, 0 To 2 Percent Slopes

Component Description

Egeland and similar soils
Extent: 70 to 90 percent of the unit
Geomorphic description:
Flat on outwash plain
Slope range: 0 to 2 percent
Surface layer texture: Sandy loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Well drained
Parent material:
Outwash

Flooding: None
Depth to wet soil moisture status: More than 6.7 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 7.5 inches
Content of organic matter in the upper 10 inches: 3.0 percent
Typical profile:
Ap,A1--0 to 15 inches; sandy loam
Bw--15 to 40 inches; sandy loam
Bk--40 to 60 inches; sandy loam
C--60 to 80 inches; loamy sand

J8B--Egeland Sandy Loam, 2 To 6 Percent Slopes

Component Description

Egeland and similar soils
Extent: 70 to 90 percent of the unit
Geomorphic description:
Hill on outwash plain
Position on landform:
Summit
Shoulder
Backslope
Slope range: 2 to 6 percent
Surface layer texture: Sandy loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Well drained
Parent material:
Outwash
Flooding: None
Depth to wet soil moisture status: More than 6.7 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 6.3 inches
Content of organic matter in the upper 10 inches: 2.9 percent
Typical profile:
Ap,A1--0 to 9 inches; sandy loam
Bw--9 to 26 inches; sandy loam
Bk--26 to 39 inches; loamy sand
C--39 to 80 inches; loamy sand

J9A--Estelline Silt Loam, 0 To 2 Percent Slopes

Component Description

Estelline and similar soils
Extent: 85 to 95 percent of the unit
Geomorphic description:
Flat on outwash plain
Slope range: 0 to 2 percent
Surface layer texture: Silt loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Well drained
Parent material:
Lacustrine deposits over outwash
Flooding: None
Depth to wet soil moisture status: More than 6.7 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 8.4 inches
Content of organic matter in the upper 10 inches: 4.4 percent
Typical profile:
Ap--0 to 6 inches; silt loam
Bw--6 to 27 inches; silty clay loam
Bk--27 to 37 inches; silt loam
2C--37 to 60 inches; gravelly sand

J10A--Sinai Silty Clay, 0 To 2 Percent Slopes

Component Description

Sinai and similar soils
Extent: 80 to 95 percent of the unit
Geomorphic description:
Flat on moraine
Slope range: 0 to 2 percent
Surface layer texture: Silty clay
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Moderately well drained
Parent material:
Lacustrine deposits
Flooding: None
Wet soil moisture status is highest (depth, months):
2.5 feet April May
Wet soil moisture status is lowest (depth, months):
5.6 feet February August
Ponding: None
Available water capacity to a depth of 60 inches: 9.0 inches
Content of organic matter in the upper 10 inches: 5.0 percent
Typical profile:
Ap,A--0 to 12 inches; silty clay
Bss--12 to 23 inches; silty clay
Bkss--23 to 42 inches; silty clay
C--42 to 60 inches; silty clay

J10B--Sinai Silty Clay, 2 To 6 Percent Slopes

Component Description

Sinai and similar soils
Extent: 85 to 95 percent of the unit
Geomorphic description:
Hill on moraine
Position on landform:
Summit
Backslope
Shoulder
Slope range: 2 to 6 percent
Surface layer texture: Silty clay
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Moderately well drained
Parent material:
Lacustrine deposits
Flooding: None
Wet soil moisture status is highest (depth, months):
2.5 feet April May
Wet soil moisture status is lowest (depth, months):
5.6 feet February August
Ponding: None
Available water capacity to a depth of 60 inches: 9.0 inches
Content of organic matter in the upper 10 inches: 5.0 percent
Typical profile:
Ap,A--0 to 12 inches; silty clay
Bss--12 to 23 inches; silty clay
Bkss--23 to 42 inches; silty clay
C--42 to 60 inches; silty clay

J11A--Vallers Clay Loam, 0 To 2 Percent Slopes

Component Description

Vallers and similar soils
Extent: 75 to 95 percent of the unit
Geomorphic description:
Drainageway on till plain
Flat on till plain
Rim on depression on till plain
Slope range: 0 to 2 percent
Surface layer texture: Clay loam
Depth to restrictive feature:
Very deep (more than 60 inches)

Drainage class: Poorly drained
Parent material:
Till
Flooding: None
Wet soil moisture status is highest (depth, months):
0.5 foot April
Wet soil moisture status is lowest (depth, months):
3.3 feet February August
Ponding: None
Available water capacity to a depth of 60 inches: 10.6 inches
Content of organic matter in the upper 10 inches: 6.5 percent
Typical profile:
Ap,A--0 to 14 inches; clay loam
Bkg--14 to 38 inches; loam
Cg--38 to 80 inches; loam

J12A--Marysland Loam, 0 To 2 Percent Slopes

Component Description

Marysland and similar soils
Extent: 75 to 95 percent of the unit
Geomorphic description:
Drainageway on outwash plain
Flat on outwash plain
Rim on depression on outwash plain
Slope range: 0 to 2 percent
Surface layer texture: Loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Poorly drained
Parent material:
Outwash
Flooding: None
Wet soil moisture status is highest (depth, months):
0.5 foot April
Wet soil moisture status is lowest (depth, months):
2.0 feet August
Ponding: None
Available water capacity to a depth of 60 inches: 6.6 inches
Content of organic matter in the upper 10 inches: 6.5 percent
Typical profile:
Ap--0 to 9 inches; loam
Ak--9 to 12 inches; loam
Bkg--12 to 27 inches; loam
2Cg--27 to 80 inches; gravelly sand

J13A--Oldham Silty Clay Loam, Depressional, 0 To 1 Percent Slopes

Component Description

Oldham and similar soils
Extent: 85 to 95 percent of the unit
Geomorphic description:
Depression on moraine
Depression on till plain
Depression on lake plain
Slope range: 0 to 1 percent
Surface layer texture: Silty clay loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Very poorly drained
Parent material:
Lacustrine deposits
Flooding: None
Wet soil moisture status is highest (depth, months):
At the surface March April
Wet soil moisture status is lowest (depth, months):
2.0 feet February August
Ponding does not occur (months):
January February May June July August September October
November December

Ponding is deepest (depth, months):
1.0 foot April
Available water capacity to a depth of 60 inches: 9.9 inches
Content of organic matter in the upper 10 inches: 5.5 percent
Typical profile:
Ap,A--0 to 28 inches; silty clay loam
Cg--28 to 80 inches; silty clay loam

J14F--Esmond Loam, 18 To 40 Percent Slopes

Component Description

Esmond and similar soils
Extent: 75 to 95 percent of the unit
Geomorphic description:
Hill on moraine
Position on landform:
Summit
Shoulder
Backslope
Slope range: 18 to 40 percent
Surface layer texture: Loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Well drained
Parent material:
Till
Flooding: None
Depth to wet soil moisture status: More than 6.7 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 9.4 inches
Content of organic matter in the upper 10 inches: 2.0 percent
Typical profile:
A--0 to 8 inches; loam
Bk--8 to 27 inches; stratified sandy loam to loam to silt loam
C--27 to 80 inches; stratified sandy loam to loam to silt loam

J15B--Eckman Silt Loam, 2 To 6 Percent Slopes

Component Description

Eckman and similar soils
Extent: 70 to 90 percent of the unit
Geomorphic description:
Hill on lake plain
Position on landform:
Summit
Shoulder
Backslope
Slope range: 2 to 6 percent
Surface layer texture: Silt loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Well drained
Parent material:
Lacustrine deposits
Flooding: None
Depth to wet soil moisture status: More than 6.7 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 12.7 inches
Content of organic matter in the upper 10 inches: 4.5 percent
Typical profile:
Ap,A--0 to 13 inches; silt loam
Bw--13 to 22 inches; silt loam
Bk--22 to 30 inches; silt loam
BC,C--30 to 80 inches; silt loam

J16A--Friberg Silt Loam, Depressional, 0 To 2 Percent Slopes

Component Description

Friberg, depressional and similar soils
Extent: 85 to 95 percent of the unit
Geomorphic description:
Depression on moraine
Slope range: 0 to 2 percent
Surface layer texture: Silt loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Very poorly drained
Parent material:
Till
Flooding: None
Wet soil moisture status is highest (depth, months):
At the surface March April
Wet soil moisture status is lowest (depth, months):
2.0 feet February August
Ponding does not occur (months):
January February May June July August September October
November December
Ponding is deepest (depth, months):
1.0 foot April
Available water capacity to a depth of 60 inches: 11.3 inches
Content of organic matter in the upper 10 inches: 7.5 percent
Typical profile:
Ap,A--0 to 23 inches; silt loam
Btg--23 to 47 inches; silty clay loam
Bkg--47 to 60 inches; loam
Cg--60 to 80 inches; loam

J17A--Quam Silty Clay Loam, Depressional, 0 To 1 Percent Slopes

Component Description

Quam, depressional and similar soils
Extent: 85 to 95 percent of the unit
Geomorphic description:
Depression on moraine
Depression on lake plain
Depression on till plain
Slope range: 0 to 1 percent
Surface layer texture: Silty clay loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Very poorly drained
Parent material:
Lacustrine deposits
Flooding: None
Wet soil moisture status is highest (depth, months):
At the surface March April
Wet soil moisture status is lowest (depth, months):
2.0 feet February August
Ponding does not occur (months):
January February May June July August September October
November December
Ponding is deepest (depth, months):
1.0 foot April
Available water capacity to a depth of 60 inches: 11.5 inches
Content of organic matter in the upper 10 inches: 10.5 percent
Typical profile:
Ap--0 to 10 inches; silty clay loam
A1,A2--10 to 45 inches; silty clay loam
Cg--45 to 80 inches; silty clay loam

J18A--Malachy Sandy Loam, 1 To 3 Percent Slopes

Component Description

Malachy and similar soils
Extent: 75 to 95 percent of the unit
Geomorphic description:
Knoll on outwash plain
Slope range: 1 to 3 percent

Surface layer texture: Sandy loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Moderately well drained
Parent material:
Outwash
Flooding: None
Wet soil moisture status is highest (depth, months):
2.5 feet April
Wet soil moisture status is lowest (depth, months):
3.9 feet February August
Ponding: None
Available water capacity to a depth of 60 inches: 6.2 inches
Content of organic matter in the upper 10 inches: 4.5 percent
Typical profile:
Ap,A--0 to 17 inches; sandy loam
Bk--17 to 28 inches; sandy loam
2C--28 to 80 inches; loamy sand

J19A--Hecla Loamy Fine Sand, 1 To 3 Percent Slopes

Component Description

Hecla and similar soils
Extent: 70 to 90 percent of the unit
Geomorphic description:
Swale on outwash plain
Flat on outwash plain
Slope range: 1 to 3 percent
Surface layer texture: Loamy fine sand
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Moderately well drained
Parent material:
Outwash
Flooding: None
Wet soil moisture status is highest (depth, months):
2.5 feet April
Wet soil moisture status is lowest (depth, months):
3.9 feet February August
Ponding: None
Available water capacity to a depth of 60 inches: 5.1 inches
Content of organic matter in the upper 10 inches: 1.4 percent
Typical profile:
Ap--0 to 9 inches; loamy fine sand
C--9 to 80 inches; fine sand

J20A--Clontarf Sandy Loam, 1 To 3 Percent Slopes

Component Description

Clontarf and similar soils
Extent: 70 to 90 percent of the unit
Geomorphic description:
Flat on outwash plain
Swale on outwash plain
Slope range: 1 to 3 percent
Surface layer texture: Sandy loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Somewhat poorly drained
Parent material:
Outwash
Flooding: None
Wet soil moisture status is highest (depth, months):
1.3 feet April
Wet soil moisture status is lowest (depth, months):
3.0 feet August
Ponding: None
Available water capacity to a depth of 60 inches: 6.8 inches
Content of organic matter in the upper 10 inches: 3.0 percent
Typical profile:

Ap,A--0 to 15 inches; sandy loam
Bw--15 to 25 inches; sandy loam
2C--25 to 80 inches; sand

J21A--Hamar Loamy Fine Sand, 0 To 2 Percent Slopes

Component Description

Hamar and similar soils
Extent: 75 to 95 percent of the unit
Geomorphic description:
Drainageway on outwash plain
Flat on outwash plain
Slope range: 0 to 2 percent
Surface layer texture: Loamy fine sand
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Poorly drained
Parent material:
Outwash
Flooding: None
Wet soil moisture status is highest (depth, months):
0.5 foot April
Wet soil moisture status is lowest (depth, months):
2.0 feet August
Ponding: None
Available water capacity to a depth of 60 inches: 5.0 inches
Content of organic matter in the upper 10 inches: 2.0 percent
Typical profile:
Ap,A--0 to 20 inches; loamy fine sand
Cg--20 to 80 inches; loamy fine sand

J22A--Renshaw Loam, 0 To 3 Percent Slopes

Component Description

Renshaw and similar soils
Extent: 75 to 95 percent of the unit
Geomorphic description:
Flat on outwash plain
Slope range: 0 to 3 percent
Surface layer texture: Loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Somewhat excessively drained
Parent material:
Outwash
Flooding: None
Depth to wet soil moisture status: More than 6.7 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 5.2 inches
Content of organic matter in the upper 10 inches: 3.5 percent
Typical profile:
Ap--0 to 7 inches; loam
Bw--7 to 15 inches; loam
2Bk--15 to 20 inches; gravelly loamy sand
2C--20 to 60 inches; gravelly loamy sand

J23A--Lamoure Silty Clay Loam, 0 To 2 Percent Slopes, Occasionally Flooded

Component Description

Lamoure, occasional and similar soils
Extent: 75 to 95 percent of the unit
Geomorphic description:
Flat on flood plain
Slope range: 0 to 2 percent
Surface layer texture: Silty clay loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Poorly drained

Parent material:
Alluvium
Flooding does not occur (months):
January February September October November December
Flooding is most likely (frequency, months):
Occasional March April May June July August
Wet soil moisture status is highest (depth, months):
0.5 foot April
Wet soil moisture status is lowest (depth, months):
3.3 feet February August
Ponding: None
Available water capacity to a depth of 60 inches: 12.1 inches
Content of organic matter in the upper 10 inches: 6.0 percent
Typical profile:
A1,A2--0 to 27 inches; silty clay loam
Cg1--27 to 34 inches; silty clay loam
Cg2--34 to 60 inches; silt loam

J24F--Buse Loam, 18 To 40 Percent Slopes

Component Description

Buse and similar soils
Extent: 75 to 95 percent of the unit
Geomorphic description:
Hill on till plain
Position on landform:
Backslope
Summit
Shoulder
Slope range: 18 to 40 percent
Surface layer texture: Loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Well drained
Parent material:
Till
Flooding: None
Depth to wet soil moisture status: More than 6.7 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 10.4 inches
Content of organic matter in the upper 10 inches: 2.0 percent
Typical profile:
A--0 to 8 inches; loam
Bk--8 to 37 inches; loam
C--37 to 80 inches; loam

J25A--Rauville Silty Clay Loam, 0 To 1 Percent Slopes, Frequently Flooded

Component Description

Rauville, frequent and similar soils
Extent: 80 to 95 percent of the unit
Geomorphic description:
Flat on flood plain
Slope range: 0 to 1 percent
Surface layer texture: Silty clay loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Very poorly drained
Parent material:
Alluvium
Flooding does not occur (months):
January February September October November December
Flooding is most likely (frequency, months):
Frequent March April May June
Wet soil moisture status is highest (depth, months):
At the surface March April May
Wet soil moisture status is lowest (depth, months):
1.6 feet February August
Ponding: None
Available water capacity to a depth of 60 inches: 10.4 inches

Content of organic matter in the upper 10 inches: 6.0 percent
Typical profile:
A1,A2--0 to 27 inches; silty clay loam
Cg--27 to 45 inches; silty clay loam
2Cg--45 to 60 inches; stratified gravelly sand to clay loam

J26B--Darnen Loam, 2 To 6 Percent Slopes

Component Description

Darnen and similar soils
Extent: 85 to 95 percent of the unit
Geomorphic description:
Hill on moraine
Position on landform:
Footslope
Slope range: 2 to 6 percent
Surface layer texture: Loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Well drained
Parent material:
Colluvium
Flooding: None
Wet soil moisture status is highest (depth, months):
3.9 feet April
Wet soil moisture status is lowest (depth, months):
More than 6.7 feet January February July August September
Ponding: None
Available water capacity to a depth of 60 inches: 11.5 inches
Content of organic matter in the upper 10 inches: 5.0 percent
Typical profile:
Ap,A--0 to 24 inches; loam
AB,Bw1--24 to 34 inches; loam
Bw2--34 to 80 inches; loam

J27A--Hantho Silt Loam, 1 To 3 Percent Slopes

Component Description

Hantho and similar soils
Extent: 75 to 95 percent of the unit
Geomorphic description:
Flat on lake plain
Swale on lake plain
Slope range: 1 to 3 percent
Surface layer texture: Silt loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Somewhat poorly drained
Parent material:
Lacustrine deposits
Flooding: None
Wet soil moisture status is highest (depth, months):
1.5 feet April
Wet soil moisture status is lowest (depth, months):
5.9 feet February August
Ponding: None
Available water capacity to a depth of 60 inches: 12.3 inches
Content of organic matter in the upper 10 inches: 5.0 percent
Typical profile:
Ap,A--0 to 12 inches; silt loam
Bw--12 to 24 inches; silt loam
Bk,Bkg--24 to 65 inches; silt loam
Cg--65 to 80 inches; silt loam

J28A--Vallers Clay Loam, 0 To 2 Percent Slopes, Bouldery

Component Description

Vallers, bouldery and similar soils
Extent: 80 to 95 percent of the unit
Geomorphic description:
Drainageway on terrace
Rim on depression on terrace
Flat on terrace
Slope range: 0 to 2 percent
Surface layer texture: Clay loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Poorly drained
Parent material:
Till
Flooding: None
Wet soil moisture status is highest (depth, months):
0.5 foot April
Wet soil moisture status is lowest (depth, months):
3.3 feet February August
Ponding: None
Available water capacity to a depth of 60 inches: 10.5 inches
Content of organic matter in the upper 10 inches: 6.5 percent
Typical profile:
A1,A2--0 to 12 inches; clay loam
Bkg--12 to 60 inches; loam
Cg--60 to 80 inches; loam

J29A--Cathro Muck, Depressional, 0 To 1 Percent Slopes

Component Description

Cathro and similar soils
Extent: 85 to 95 percent of the unit
Geomorphic description:
Depression on moraine
Depression on lake plain
Depression on till plain
Slope range: 0 to 1 percent
Surface layer texture: Muck
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Very poorly drained
Parent material:
Organic material over till
Flooding: None
Wet soil moisture status is highest (depth, months):
At the surface March April
Wet soil moisture status is lowest (depth, months):
2.0 feet February August
Ponding does not occur (months):
January February May June July August September October
November December
Ponding is deepest (depth, months):
1.0 foot April
Available water capacity to a depth of 60 inches: 14.4 inches
Content of organic matter in the upper 10 inches: 25.0 percent
Typical profile:
Op--0 to 9 inches; muck
Oa1--9 to 18 inches; muck
A--18 to 50 inches; silt loam
Cg2--50 to 80 inches; clay loam

J30A--Tara Silt Loam, 1 To 3 Percent Slopes

Component Description

Tara and similar soils
Extent: 85 to 95 percent of the unit
Geomorphic description:
Swale on till plain
Flat on till plain
Slope range: 1 to 3 percent
Surface layer texture: Silt loam

Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Somewhat poorly drained
Parent material:
Lacustrine deposits over till
Flooding: None
Wet soil moisture status is highest (depth, months):
1.5 feet April
Wet soil moisture status is lowest (depth, months):
5.9 feet February August
Ponding: None
Available water capacity to a depth of 60 inches: 11.4 inches
Content of organic matter in the upper 10 inches: 6.0 percent
Typical profile:
Ap,A--0 to 19 inches; silt loam
Bw--19 to 27 inches; silt loam
2Bk--27 to 33 inches; loam
2C--33 to 80 inches; loam

J31B--Arvilla-Sandberg Complex, 2 To 6 Percent Slopes

Component Description

Arvilla and similar soils

Extent: 35 to 55 percent of the unit
Geomorphic description:
Hill on outwash plain
Position on landform:
Backslope
Summit
Slope range: 2 to 6 percent
Surface layer texture: Sandy loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Somewhat excessively drained
Parent material:
Outwash
Flooding: None
Depth to wet soil moisture status: More than 6.7 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 3.8 inches
Content of organic matter in the upper 10 inches: 2.4 percent
Typical profile:
Ap--0 to 9 inches; sandy loam
Bw--9 to 14 inches; sandy loam
2Bk--14 to 48 inches; gravelly sand
2C--48 to 80 inches; gravelly sand

Sandberg and similar soils

Extent: 20 to 40 percent of the unit
Geomorphic description:
Hill on outwash plain
Position on landform:
Summit
Shoulder
Slope range: 2 to 6 percent
Surface layer texture: Gravelly sandy loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Excessively drained
Parent material:
Outwash
Flooding: None
Depth to wet soil moisture status: More than 6.7 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 2.7 inches
Content of organic matter in the upper 10 inches: 1.8 percent
Typical profile:
Ap--0 to 8 inches; gravelly sandy loam
Bk--8 to 32 inches; very gravelly sand
C--32 to 80 inches; gravelly sand

J32A--Bigstone Silty Clay Loam, Depressional, 0 To 1 Percent Slopes

Component Description

Bigstone and similar soils
Extent: 70 to 90 percent of the unit
Geomorphic description:
Depression on moraine
Depression on lake plain
Depression on till plain
Slope range: 0 to 1 percent
Surface layer texture: Silty clay loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Very poorly drained
Parent material:
Lacustrine deposits
Flooding: None
Wet soil moisture status is highest (depth, months):
At the surface March April
Wet soil moisture status is lowest (depth, months):
2.0 feet February August
Ponding does not occur (months):
January February May June July August September October November December
Ponding is deepest (depth, months):
1.0 foot April
Available water capacity to a depth of 60 inches: 10.9 inches
Content of organic matter in the upper 10 inches: 10.5 percent
Typical profile:
Ap--0 to 10 inches; silty clay loam
A--10 to 30 inches; silty clay loam
Cg--30 to 80 inches; loam

J33D2--Sisseton-Heimdal Complex, 12 To 20 Percent Slopes, Eroded

Component Description

Sisseton, eroded and similar soils
Extent: 60 to 80 percent of the unit
Geomorphic description:
Hill on moraine
Position on landform:
Shoulder
Slope range: 12 to 20 percent
Surface layer texture: Loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Well drained
Parent material:
Till
Flooding: None
Depth to wet soil moisture status: More than 6.7 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 9.1 inches
Content of organic matter in the upper 10 inches: 1.7 percent
Typical profile:
Ap--0 to 8 inches; loam
Bk--8 to 36 inches; stratified sandy loam to loam to silt loam
C--36 to 80 inches; stratified sandy loam to loam to silt loam

J34B--Byrne-Buse Complex, 2 To 6 Percent Slopes

Component Description

Byrne and similar soils
Extent: 35 to 55 percent of the unit
Geomorphic description:
Hill on till plain
Position on landform:
Backslope
Summit

Slope range: 2 to 6 percent
Surface layer texture: Silt loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Well drained
Parent material:
Lacustrine deposits over till
Flooding: None
Wet soil moisture status is highest (depth, months):
3.9 feet April
Wet soil moisture status is lowest (depth, months):
More than 6.7 feet January February July August September
Ponding: None
Available water capacity to a depth of 60 inches: 11.6 inches
Content of organic matter in the upper 10 inches: 4.5 percent
Typical profile:
Ap--0 to 10 inches; silt loam
Bw--10 to 23 inches; silt loam
Bk--23 to 28 inches; silt loam
2Bk--28 to 40 inches; loam
2C--40 to 80 inches; loam

Buse and similar soils
Extent: 25 to 45 percent of the unit
Geomorphic description:
Hill on till plain
Position on landform:
Shoulder
Summit
Slope range: 3 to 6 percent
Surface layer texture: Loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Well drained
Parent material:
Till
Flooding: None
Depth to wet soil moisture status: More than 6.6 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 10.4 inches
Content of organic matter in the upper 10 inches: 2.0 percent
Typical profile:
Ap--0 to 8 inches; loam
Bk--8 to 40 inches; loam
C--40 to 60 inches; loam

J35B--Hokans-Buse Complex, 2 To 6 Percent Slopes

Component Description

Hokans and similar soils
Extent: 35 to 55 percent of the unit
Geomorphic description:
Hill on till plain
Position on landform:
Backslope
Summit
Slope range: 2 to 6 percent
Surface layer texture: Loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Well drained
Parent material:
Till
Flooding: None
Wet soil moisture status is highest (depth, months):
3.9 feet April
Wet soil moisture status is lowest (depth, months):
More than 6.7 feet January February July August September
Ponding: None
Available water capacity to a depth of 60 inches: 10.8 inches

Content of organic matter in the upper 10 inches: 4.5 percent
Typical profile:
Ap,A--0 to 15 inches; loam
Bw--15 to 22 inches; loam
Bk--22 to 40 inches; loam
C--40 to 80 inches; loam

Buse and similar soils
Extent: 20 to 40 percent of the unit
Geomorphic description:
Hill on till plain
Position on landform:
Summit
Shoulder
Slope range: 3 to 6 percent
Surface layer texture: Loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Well drained
Parent material:
Till
Flooding: None
Depth to wet soil moisture status: More than 6.7 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 10.4 inches
Content of organic matter in the upper 10 inches: 2.0 percent
Typical profile:
Ap--0 to 8 inches; loam
Bk--8 to 40 inches; loam
C--40 to 60 inches; loam

J36C2--Buse-Barnes Complex 6 To 12 Percent Slopes, Eroded

Component Description

Buse, eroded and similar soils
Extent: 35 to 55 percent of the unit
Geomorphic description:
Hill on till plain
Position on landform:
Shoulder
Slope range: 6 to 12 percent
Surface layer texture: Loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Well drained
Parent material:
Till
Flooding: None
Depth to wet soil moisture status: More than 6.7 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 10.4 inches
Content of organic matter in the upper 10 inches: 1.9 percent
Typical profile:
Ap--0 to 9 inches; loam
Bk--9 to 34 inches; loam
C--34 to 80 inches; loam

Barnes, eroded and similar soils
Extent: 10 to 30 percent of the unit
Geomorphic description:
Hill on till plain
Position on landform:
Summit
Slope range: 6 to 12 percent
Surface layer texture: Loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Well drained
Parent material:
Till
Flooding: None
Depth to wet soil moisture status: More than 6.7 feet all year

Ponding: None
Available water capacity to a depth of 60 inches: 10.6 inches
Content of organic matter in the upper 10 inches: 3.5 percent
Typical profile:
Ap,A--0 to 10 inches; loam
Bw--10 to 22 inches; loam
Bk--22 to 42 inches; loam
C--42 to 80 inches; loam

J37D2--Langhei-Barnes Complex, 12 To 20 Percent Slopes,eroded

Component Description

Langhei, eroded and similar soils
Extent: 50 to 70 percent of the unit
Geomorphic description:
Hill on moraine
Position on landform:
Summit
Shoulder
Slope range: 12 to 20 percent
Surface layer texture: Loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Well drained
Parent material:
Till
Flooding: None
Depth to wet soil moisture status: More than 6.7 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 10.4 inches
Content of organic matter in the upper 10 inches: 1.2 percent
Typical profile:
Ap--0 to 6 inches; loam
Bk--6 to 15 inches; loam
C--15 to 60 inches; loam

Barnes, eroded and similar soils
Extent: 10 to 20 percent of the unit
Geomorphic description:
Hill on moraine
Position on landform:
Summit
Slope range: 12 to 20 percent
Surface layer texture: Loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Well drained
Parent material:
Till
Flooding: None
Depth to wet soil moisture status: More than 6.7 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 10.6 inches
Content of organic matter in the upper 10 inches: 3.5 percent
Typical profile:
Ap,A--0 to 10 inches; loam
Bw--10 to 22 inches; loam
Bk--22 to 42 inches; loam
C--42 to 80 inches; loam

J38B--Zell-Eckman Complex, 2 To 6 Percent Slopes

Component Description

Zell and similar soils
Extent: 30 to 55 percent of the unit
Geomorphic description:
Hill on moraine
Position on landform:
Summit
Shoulder

Slope range: 2 to 6 percent
Surface layer texture: Silt loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Well drained
Parent material:
Lacustrine deposits
Flooding: None
Depth to wet soil moisture status: More than 6.7 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 11.1 inches
Content of organic matter in the upper 10 inches: 2.5 percent
Typical profile:
Ap--0 to 10 inches; silt loam
Bk--10 to 43 inches; silt loam
C--43 to 80 inches; silt loam

Eckman and similar soils
Extent: 30 to 50 percent of the unit
Geomorphic description:
Hill on moraine
Position on landform:
Backslope
Summit
Slope range: 2 to 6 percent
Surface layer texture: Silt loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Well drained
Parent material:
Lacustrine deposits
Flooding: None
Depth to wet soil moisture status: More than 6.7 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 12.7 inches
Content of organic matter in the upper 10 inches: 4.5 percent
Typical profile:
Ap,A--0 to 15 inches; silt loam
Bw--15 to 32 inches; silt loam
Bk--32 to 42 inches; silt loam
C--42 to 80 inches; silt loam

J38C2--Zell-Eckman Complex, 6 To 12 Percent Slopes, Eroded

Component Description

Zell, eroded and similar soils
Extent: 35 to 55 percent of the unit
Geomorphic description:
Hill on moraine
Position on landform:
Shoulder
Slope range: 6 to 12 percent
Surface layer texture: Silt loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Well drained
Parent material:
Lacustrine deposits
Flooding: None
Depth to wet soil moisture status: More than 6.7 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 11.0 inches
Content of organic matter in the upper 10 inches: 1.9 percent
Typical profile:
Ap--0 to 9 inches; silt loam
Bk--9 to 28 inches; silt loam
C--28 to 80 inches; silt loam

Eckman, eroded and similar soils
Extent: 10 to 30 percent of the unit
Geomorphic description:
Hill on moraine

Position on landform:
Summit
Slope range: 6 to 12 percent
Surface layer texture: Silt loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Well drained
Parent material:
Lacustrine deposits
Flooding: None
Depth to wet soil moisture status: More than 6.7 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 12.5 inches
Content of organic matter in the upper 10 inches: 2.9 percent
Typical profile:
Ap--0 to 8 inches; silt loam
Bw--8 to 31 inches; silt loam
Bk--31 to 50 inches; silt loam
C--50 to 80 inches; silt loam

Zell and similar soils
Extent: 5 to 25 percent of the unit
Geomorphic description:
Hill on moraine
Position on landform:
Summit
Slope range: 6 to 12 percent
Surface layer texture: Silt loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Well drained
Parent material:
Lacustrine deposits
Flooding: None
Depth to wet soil moisture status: More than 6.7 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 11.1 inches
Content of organic matter in the upper 10 inches: 2.5 percent
Typical profile:
Ap--0 to 10 inches; silt loam
Bk--10 to 43 inches; silt loam
C--43 to 80 inches; silt loam

J39A--Udorthents, Shallow (sanitary Landfill)

Component Description

Udorthents
Extent: 100 percent of the unit

J40A--Foxlake Silty Clay, 0 To 2 Percent Slopes

Component Description

Foxlake and similar soils
Extent: 75 to 95 percent of the unit
Geomorphic description:
Flat on till plain
Drainageway on till plain
Slope range: 0 to 2 percent
Surface layer texture: Silty clay
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Poorly drained
Parent material:
Till
Flooding: None
Wet soil moisture status is highest (depth, months):
0.5 foot April May
Wet soil moisture status is lowest (depth, months):
2.6 feet February August
Ponding: None

Available water capacity to a depth of 60 inches: 11.2 inches
Content of organic matter in the upper 10 inches: 4.0 percent
Typical profile:
Ap--0 to 23 inches; silty clay
Bkg--23 to 39 inches; silty clay
Cg--39 to 80 inches; silty clay

J41A--Urness Mucky Silty Clay Loam, Depressional, 0 To 1 Percent Slopes

Component Description

Urness and similar soils
Extent: 70 to 90 percent of the unit
Geomorphic description:
Depression on lake plain
Depression on moraine
Depression on till plain
Slope range: 0 to 1 percent
Surface layer texture: Mucky silty clay loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Very poorly drained
Parent material:
Lacustrine deposits over till
Flooding: None
Wet soil moisture status is highest (depth, months):
At the surface March April
Wet soil moisture status is lowest (depth, months):
2.0 feet February August
Ponding does not occur (months):
January February May June July August September October
November December
Ponding is deepest (depth, months):
1.0 foot April
Available water capacity to a depth of 60 inches: 11.0 inches
Content of organic matter in the upper 10 inches: 15.0 percent
Typical profile:
Ap--0 to 9 inches; mucky silty clay loam
Cg--9 to 32 inches; mucky silt loam
2Cg--32 to 80 inches; silty clay loam

J42C--Sandberg-Arvilla Complex, 6 To 12 Percent Slopes

Component Description

Sandberg and similar soils
Extent: 50 to 70 percent of the unit
Geomorphic description:
Hill on outwash plain
Position on landform:
Summit
Shoulder
Slope range: 6 to 12 percent
Surface layer texture: Gravelly sandy loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Excessively drained
Parent material:
Outwash
Flooding: None
Depth to wet soil moisture status: More than 6.7 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 2.8 inches
Content of organic matter in the upper 10 inches: 2.0 percent
Typical profile:
Ap--0 to 10 inches; gravelly sandy loam
Bk--10 to 22 inches; gravelly sand
C--22 to 80 inches; gravelly sand

Arvilla and similar soils
Extent: 25 to 35 percent of the unit
Geomorphic description:

Hill on outwash plain
Position on landform:
Backslope
Summit
Slope range: 6 to 12 percent
Surface layer texture: Sandy loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Somewhat excessively drained
Parent material:
Outwash
Flooding: None
Depth to wet soil moisture status: More than 6.7 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 3.8 inches
Content of organic matter in the upper 10 inches: 2.4 percent
Typical profile:
A--0 to 9 inches; sandy loam
Bw--9 to 14 inches; sandy loam
2Bk--14 to 48 inches; gravelly sand
2C--48 to 80 inches; gravelly sand

J43A--Quam, Cathro, And Urness Soils, Ponded, 0 To 1 Percent Slopes

Component Description

Quam, depressional and similar soils
Extent: 0 to 85 percent of the unit
Geomorphic description:
Depression on moraine
Depression on till plain
Depression on lake plain
Slope range: 0 to 1 percent
Surface layer texture: Silt loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Very poorly drained
Parent material:
Lacustrine deposits
Flooding: None
Wet soil moisture status: At the surface all year
Ponding is shallowest (depth, months):
0.5 foot August
Ponding is deepest (depth, months):
3.0 feet March April May
Available water capacity to a depth of 60 inches: 12.5 inches
Content of organic matter in the upper 10 inches: 10.5 percent
Typical profile:
A--0 to 33 inches; silt loam
Cg--33 to 50 inches; silty clay loam
2Cg--50 to 60 inches; clay loam

Cathro and similar soils
Extent: 0 to 85 percent of the unit
Geomorphic description:
Depression on lake plain
Depression on till plain
Depression on moraine
Slope range: 0 to 1 percent
Surface layer texture: Muck
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Very poorly drained
Parent material:
Organic material over till
Flooding: None
Wet soil moisture status: At the surface all year
Ponding is shallowest (depth, months):
0.5 foot August
Ponding is deepest (depth, months):
3.0 feet March April May
Available water capacity to a depth of 60 inches: 20.0 inches
Content of organic matter in the upper 10 inches: 25.0 percent

Typical profile:
Oa1--0 to 20 inches; muck
Oa2--20 to 34 inches; muck
A--34 to 40 inches; loam
Cg--40 to 80 inches; loam

Urness and similar soils
Extent: 0 to 85 percent of the unit
Geomorphic description:
Depression on moraine
Depression on lake plain
Depression on till plain
Slope range: 0 to 1 percent
Surface layer texture: Mucky silt loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Very poorly drained
Parent material:
Lacustrine deposits over till
Flooding: None
Wet soil moisture status: At the surface all year
Ponding is shallowest (depth, months):
0.5 foot August
Ponding is deepest (depth, months):
3.0 feet March April May
Available water capacity to a depth of 60 inches: 11.5 inches
Content of organic matter in the upper 10 inches: 15.0 percent
Typical profile:
A--0 to 20 inches; mucky silt loam
Cg--20 to 45 inches; mucky silt loam
2Cg--45 to 60 inches; loam

J44B--Esmond-Heimdal Complex, 2 To 6 Percent Slopes

Component Description

Esmond and similar soils
Extent: 35 to 55 percent of the unit
Geomorphic description:
Hill on moraine
Position on landform:
Summit
Shoulder
Slope range: 2 to 6 percent
Surface layer texture: Loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Well drained
Parent material:
Till
Flooding: None
Depth to wet soil moisture status: More than 6.7 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 9.6 inches
Content of organic matter in the upper 10 inches: 2.5 percent
Typical profile:
Ap--0 to 10 inches; loam
Bk--10 to 30 inches; stratified sandy loam to loam to silt loam
C--30 to 80 inches; stratified sandy loam to loam to silt loam

Heimdal and similar soils
Extent: 30 to 50 percent of the unit
Geomorphic description:
Hill on moraine
Position on landform:
Backslope
Summit
Slope range: 2 to 6 percent
Surface layer texture: Loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Well drained
Parent material:

Till
Flooding: None
Depth to wet soil moisture status: More than 6.7 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 9.7 inches
Content of organic matter in the upper 10 inches: 4.5 percent
Typical profile:
Ap--0 to 10 inches; loam
Bw--10 to 22 inches; loam
Bk--22 to 42 inches; stratified sandy loam to loam to silt loam
C--42 to 80 inches; stratified sandy loam to loam to silt loam

J44C2--Esmond-Heimdal Complex, 6 To 12 Percent Slopes, Eroded

Component Description

Esmond, eroded and similar soils
Extent: 30 to 50 percent of the unit
Geomorphic description:
Hill on moraine
Position on landform:
Shoulder
Slope range: 6 to 12 percent
Surface layer texture: Loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Well drained
Parent material:
Till
Flooding: None
Depth to wet soil moisture status: More than 6.7 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 9.4 inches
Content of organic matter in the upper 10 inches: 1.7 percent
Typical profile:
Ap--0 to 8 inches; loam
Bk--8 to 30 inches; stratified sandy loam to loam to silt loam
C--30 to 80 inches; stratified sandy loam to loam to silt loam

Heimdal, eroded and similar soils
Extent: 10 to 30 percent of the unit
Geomorphic description:
Hill on moraine
Position on landform:
Summit
Slope range: 6 to 12 percent
Surface layer texture: Loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Well drained
Parent material:
Till
Flooding: None
Depth to wet soil moisture status: More than 6.7 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 9.5 inches
Content of organic matter in the upper 10 inches: 2.7 percent
Typical profile:
Ap--0 to 7 inches; loam
Bw--7 to 16 inches; loam
Bk--16 to 36 inches; stratified sandy loam to loam to silt loam
C--36 to 80 inches; stratified sandy loam to loam to silt loam

Esmond and similar soils
Extent: 5 to 25 percent of the unit
Geomorphic description:
Hill on moraine
Position on landform:
Summit
Slope range: 6 to 12 percent
Surface layer texture: Loam
Depth to restrictive feature:
Very deep (more than 60 inches)

Drainage class: Well drained
Parent material:
Till
Flooding: None
Depth to wet soil moisture status: More than 6.7 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 9.6 inches
Content of organic matter in the upper 10 inches: 2.5 percent
Typical profile:
Ap--0 to 10 inches; loam
Bk--10 to 30 inches; stratified sandy loam to loam to silt loam
C--30 to 80 inches; stratified sandy loam to loam to silt loam

J45F--Sandberg Sandy Loam, 12 To 40 Percent Slopes

Component Description

Sandberg and similar soils
Extent: 70 to 90 percent of the unit
Geomorphic description:
Hill on outwash plain
Position on landform:
Backslope
Shoulder
Summit
Slope range: 12 to 40 percent
Surface layer texture: Sandy loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Excessively drained
Parent material:
Outwash
Flooding: None
Depth to wet soil moisture status: More than 6.7 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 3.6 inches
Content of organic matter in the upper 10 inches: 2.5 percent
Typical profile:
A1,A2--0 to 12 inches; sandy loam
Bk--12 to 28 inches; gravelly sand
C--28 to 80 inches; gravelly sand

J46B--Byrne Silt Loam, 2 To 4 Percent Slopes

Component Description

Byrne and similar soils
Extent: 75 to 95 percent of the unit
Geomorphic description:
Hill on till plain
Position on landform:
Summit
Shoulder
Backslope
Slope range: 2 to 4 percent
Surface layer texture: Silt loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Well drained
Parent material:
Lacustrine deposits over till
Flooding: None
Wet soil moisture status is highest (depth, months):
3.9 feet April
Wet soil moisture status is lowest (depth, months):
More than 6.7 feet January February July August September
Ponding: None
Available water capacity to a depth of 60 inches: 11.4 inches
Content of organic matter in the upper 10 inches: 3.9 percent
Typical profile:
Ap--0 to 8 inches; silt loam

Bw--8 to 23 inches; silt loam
Bk1--23 to 28 inches; silt loam
2Bk--28 to 72 inches; loam
2C--72 to 80 inches; loam

J47A--Swenoda Sandy Loam, Moderately Wet, 1 To 3 Percent Slopes

Component Description

Swenoda and similar soils
Extent: 75 to 95 percent of the unit
Geomorphic description:
Swale on outwash plain
Flat on outwash plain
Slope range: 1 to 3 percent
Surface layer texture: Sandy loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Moderately well drained
Parent material:
Outwash over lacustrine deposits
Outwash over till
Flooding: None
Wet soil moisture status is highest (depth, months):
2.5 feet April
Wet soil moisture status is lowest (depth, months):
More than 6.7 feet February August
Ponding: None
Available water capacity to a depth of 60 inches: 10.4 inches
Content of organic matter in the upper 10 inches: 4.5 percent
Typical profile:
Ap,A--0 to 17 inches; sandy loam
Bw--17 to 29 inches; sandy loam
2C--29 to 80 inches; silt loam

J48A--Bigstone And Parnell Soils, Ponded, 0 To 1 Percent Slopes

Component Description

Bigstone and similar soils
Extent: 0 to 85 percent of the unit
Geomorphic description:
Depression on moraine
Depression on till plain
Depression on lake plain
Slope range: 0 to 1 percent
Surface layer texture: Silty clay loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Very poorly drained
Parent material:
Lacustrine deposits
Flooding: None
Wet soil moisture status: At the surface all year
Ponding is shallowest (depth, months):
0.5 foot August
Ponding is deepest (depth, months):
3.0 feet March April May
Available water capacity to a depth of 60 inches: 11.3 inches
Content of organic matter in the upper 10 inches: 10.5 percent
Typical profile:
A1--0 to 18 inches; silty clay loam
A2--18 to 48 inches; silty clay loam
2Cg--48 to 80 inches; loam

Parnell and similar soils
Extent: 0 to 85 percent of the unit
Geomorphic description:
Depression on lake plain
Depression on till plain
Depression on moraine
Slope range: 0 to 1 percent

Surface layer texture: Silty clay loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Very poorly drained
Parent material:
Till
Flooding: None
Wet soil moisture status: At the surface all year
Ponding is shallowest (depth, months):
0.5 foot August
Ponding is deepest (depth, months):
3.0 feet March April May
Available water capacity to a depth of 60 inches: 10.4 inches
Content of organic matter in the upper 10 inches: 8.0 percent
Typical profile:
A1,A2--0 to 22 inches; silty clay loam
Btg--22 to 55 inches; silty clay
BCg--55 to 80 inches; silty clay loam

J49A--Lakepark-Parnell, Depressional, Complex, 0 To 2 Percent Slopes

Component Description

Lakepark and similar soils

Extent: 40 to 60 percent of the unit
Geomorphic description:
Flat on moraine
Drainageway on moraine
Slope range: 1 to 2 percent
Surface layer texture: Loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Poorly drained
Parent material:
Till
Flooding: None
Wet soil moisture status is highest (depth, months):
0.5 foot April
Wet soil moisture status is lowest (depth, months):
3.3 feet February August
Ponding: None
Available water capacity to a depth of 60 inches: 11.0 inches
Content of organic matter in the upper 10 inches: 5.9 percent
Typical profile:
Ap--0 to 8 inches; loam
A--8 to 27 inches; loam
Bg--27 to 41 inches; loam
Cg--41 to 80 inches; loam

Parnell, depressional and similar soils

Extent: 25 to 45 percent of the unit
Geomorphic description:
Depression on moraine
Slope range: 0 to 2 percent
Surface layer texture: Silty clay loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Very poorly drained
Parent material:
Till
Flooding: None
Wet soil moisture status is highest (depth, months):
At the surface March April
Wet soil moisture status is lowest (depth, months):
2.0 feet February August
Ponding does not occur (months):
January February May June July August September October
November December
Ponding is deepest (depth, months):
1.0 foot April
Available water capacity to a depth of 60 inches: 10.4 inches
Content of organic matter in the upper 10 inches: 8.0 percent
Typical profile:

A1,A2--0 to 22 inches; silty clay loam
Btg--22 to 55 inches; silty clay
BCg--55 to 80 inches; silty clay loam

J50A--Balaton-Tara Complex, 1 To 3 Percent Slopes

Component Description

Balaton and similar soils
Extent: 35 to 55 percent of the unit
Geomorphic description:
Knoll on lake plain
Slope range: 1 to 3 percent
Surface layer texture: Loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Moderately well drained
Parent material:
Till
Flooding: None
Wet soil moisture status is highest (depth, months):
2.5 feet April
Wet soil moisture status is lowest (depth, months):
More than 6.7 feet February August
Ponding: None
Available water capacity to a depth of 60 inches: 10.7 inches
Content of organic matter in the upper 10 inches: 6.0 percent
Typical profile:
Ap,A--0 to 13 inches; loam
ABk,Bk--13 to 31 inches; loam
C--31 to 80 inches; loam

Tara and similar soils
Extent: 25 to 45 percent of the unit
Geomorphic description:
Swale on lake plain
Flat on lake plain
Slope range: 1 to 3 percent
Surface layer texture: Silty clay loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Somewhat poorly drained
Parent material:
Lacustrine deposits over till
Flooding: None
Wet soil moisture status is highest (depth, months):
1.5 feet April
Wet soil moisture status is lowest (depth, months):
5.9 feet February August
Ponding: None
Available water capacity to a depth of 60 inches: 11.8 inches
Content of organic matter in the upper 10 inches: 6.0 percent
Typical profile:
Ap,A--0 to 22 inches; silty clay loam
Bw--22 to 38 inches; silt loam
2C--38 to 80 inches; loam

J51A--Bearden-Quam, Depressional, Complex, 0 To 2 Percent Slopes

Component Description

Bearden and similar soils
Extent: 50 to 70 percent of the unit
Geomorphic description:
Drainageway on lake plain
Rim on depression on lake plain
Flat on lake plain
Slope range: 0 to 2 percent
Surface layer texture: Silty clay loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Somewhat poorly drained

Parent material:
Lacustrine deposits
Flooding: None
Wet soil moisture status is highest (depth, months):
1.5 feet April
Wet soil moisture status is lowest (depth, months):
5.9 feet February August
Ponding: None
Available water capacity to a depth of 60 inches: 11.5 inches
Content of organic matter in the upper 10 inches: 5.0 percent
Typical profile:
Ap,A--0 to 16 inches; silty clay loam
Bk--16 to 37 inches; silt loam
Cg--37 to 80 inches; stratified silt loam to silty clay loam

Quam, depressional and similar soils
Extent: 20 to 40 percent of the unit
Geomorphic description:
Depression on lake plain
Slope range: 0 to 1 percent
Surface layer texture: Silty clay loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Very poorly drained
Parent material:
Lacustrine deposits
Flooding: None
Wet soil moisture status is highest (depth, months):
At the surface March April
Wet soil moisture status is lowest (depth, months):
2.0 feet February August
Ponding does not occur (months):
January February May June July August September October
November December
Ponding is deepest (depth, months):
1.0 foot April
Available water capacity to a depth of 60 inches: 11.4 inches
Content of organic matter in the upper 10 inches: 10.5 percent
Typical profile:
Ap,A--0 to 28 inches; silty clay loam
Bg--28 to 48 inches; silty clay loam
2Cg--48 to 80 inches; silty clay loam

J52A--Rondell Silty Clay Loam, 1 To 3 Percent Slopes

Component Description

Rondell and similar soils
Extent: 75 to 95 percent of the unit
Geomorphic description:
Knoll on lake plain
Slope range: 1 to 3 percent
Surface layer texture: Silty clay loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Moderately well drained
Parent material:
Lacustrine deposits
Flooding: None
Wet soil moisture status is highest (depth, months):
2.5 feet April
Wet soil moisture status is lowest (depth, months):
More than 6.7 feet February August
Ponding: None
Available water capacity to a depth of 60 inches: 10.0 inches
Content of organic matter in the upper 10 inches: 4.2 percent
Typical profile:
Ap--0 to 9 inches; silty clay loam
Bk--9 to 30 inches; silty clay loam
C--30 to 80 inches; silty clay loam

J53A--Ortonville Loam, 1 To 3 Percent Slopes

Component Description

Ortonville and similar soils
Extent: 75 to 95 percent of the unit
Geomorphic description:
Knoll on moraine
Slope range: 1 to 3 percent
Surface layer texture: Loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Moderately well drained
Parent material:
Till
Flooding: None
Wet soil moisture status is highest (depth, months):
2.5 feet April
Wet soil moisture status is lowest (depth, months):
More than 6.7 feet February August
Ponding: None
Available water capacity to a depth of 60 inches: 9.4 inches
Content of organic matter in the upper 10 inches: 4.8 percent
Typical profile:
Ap--0 to 8 inches; loam
Bk--8 to 24 inches; stratified sandy loam to loam to silt loam
C--24 to 80 inches; stratified sandy loam to loam to silt loam

J54A--Marysland Loam, Depressional, 0 To 1 Percent Slopes

Component Description

Marysland, depressional and similar soils
Extent: 85 to 95 percent of the unit
Geomorphic description:
Depression on outwash plain
Slope range: 0 to 1 percent
Surface layer texture: Loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Very poorly drained
Parent material:
Outwash
Flooding: None
Wet soil moisture status is highest (depth, months):
At the surface March April
Wet soil moisture status is lowest (depth, months):
1.8 feet August
Ponding does not occur (months):
January February May June July August September October
November December
Ponding is deepest (depth, months):
1.0 foot April
Available water capacity to a depth of 60 inches: 6.3 inches
Content of organic matter in the upper 10 inches: 8.0 percent
Typical profile:
Ap,Ak--0 to 19 inches; loam
Bkg--19 to 23 inches; sandy loam
2Cg--23 to 80 inches; gravelly sand

J55A--Sedgeville Loam, Channeled, 0 To 2 Percent Slopes, Occasionally Flooded

Component Description

Sedgeville and similar soils
Extent: 85 to 95 percent of the unit
Geomorphic description:
Flat on flood plain
Slope range: 0 to 2 percent
Surface layer texture: Loam
Depth to restrictive feature:
Very deep (more than 60 inches)

Drainage class: Poorly drained
Parent material:
Alluvium
Flooding does not occur (months):
January February September October November December
Flooding is most likely (frequency, months):
Occasional March April May June July August
Wet soil moisture status is highest (depth, months):
0.5 foot April
Wet soil moisture status is lowest (depth, months):
2.0 feet August
Ponding: None
Available water capacity to a depth of 60 inches: 8.4 inches
Content of organic matter in the upper 10 inches: 7.7 percent
Typical profile:
A--0 to 8 inches; loam
Bg--8 to 34 inches; coarse sandy loam
2Cg--34 to 80 inches; gravelly loamy coarse sand

J56A--Winger-Balaton-Parnell, Depressional, Complex, 0 To 3 Percent Slopes

Component Description

Winger and similar soils

Extent: 30 to 50 percent of the unit
Geomorphic description:
Drainageway on lake plain
Flat on lake plain
Rim on depression on lake plain
Slope range: 0 to 2 percent
Surface layer texture: Silty clay loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Poorly drained
Parent material:
Lacustrine deposits over till
Flooding: None
Wet soil moisture status is highest (depth, months):
0.5 foot April
Wet soil moisture status is lowest (depth, months):
3.3 feet February August
Ponding: None
Available water capacity to a depth of 60 inches: 12.0 inches
Content of organic matter in the upper 10 inches: 5.0 percent
Typical profile:
Ap--0 to 7 inches; silty clay loam
Ak--7 to 22 inches; silt loam
Bkg--22 to 27 inches; silt loam
Cg1--27 to 31 inches; silt loam
2Cg2--31 to 80 inches; loam

Balaton and similar soils

Extent: 20 to 40 percent of the unit
Geomorphic description:
Knoll on lake plain
Slope range: 1 to 3 percent
Surface layer texture: Loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Moderately well drained
Parent material:
Till
Flooding: None
Wet soil moisture status is highest (depth, months):
2.5 feet April
Wet soil moisture status is lowest (depth, months):
More than 6.7 feet February August
Ponding: None
Available water capacity to a depth of 60 inches: 10.7 inches
Content of organic matter in the upper 10 inches: 6.0 percent
Typical profile:
Ap,A--0 to 13 inches; loam
ABk,Bk--13 to 31 inches; loam

C--31 to 80 inches; loam

Parnell, depressional and similar soils
Extent: 10 to 30 percent of the unit
Geomorphic description:
Depression on lake plain
Slope range: 0 to 1 percent
Surface layer texture: Silty clay loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Very poorly drained
Parent material:
Lacustrine deposits over till
Flooding: None
Wet soil moisture status is highest (depth, months):
At the surface March April
Wet soil moisture status is lowest (depth, months):
2.0 feet February August
Ponding does not occur (months):
January February May June July August September October
November December
Ponding is deepest (depth, months):
1.0 foot April
Available water capacity to a depth of 60 inches: 10.4 inches
Content of organic matter in the upper 10 inches: 8.0 percent
Typical profile:
A1,A2--0 to 22 inches; silty clay loam
Btg--22 to 55 inches; silty clay
BCg--55 to 80 inches; silty clay loam

J57A--Balaton Loam, 1 To 3 Percent Slopes

Component Description

Balaton and similar soils
Extent: 75 to 95 percent of the unit
Geomorphic description:
Knoll on till plain
Slope range: 1 to 3 percent
Surface layer texture: Loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Moderately well drained
Parent material:
Till
Flooding: None
Wet soil moisture status is highest (depth, months):
2.5 feet April
Wet soil moisture status is lowest (depth, months):
More than 6.7 feet February August
Ponding: None
Available water capacity to a depth of 60 inches: 10.7 inches
Content of organic matter in the upper 10 inches: 6.0 percent
Typical profile:
Ap,A--0 to 13 inches; loam
ABk,Bk--13 to 31 inches; loam
C--31 to 80 inches; loam

J58B--Torning-Egeland Complex, 2 To 6 Percent Slopes

Component Description

Torning and similar soils
Extent: 35 to 55 percent of the unit
Geomorphic description:
Hill on outwash plain
Position on landform:
Summit
Shoulder
Slope range: 2 to 6 percent
Surface layer texture: Fine sandy loam
Depth to restrictive feature:

Very deep (more than 60 inches)
Drainage class: Well drained
Parent material:
Outwash
Flooding: None
Depth to wet soil moisture status: More than 6.7 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 10.2 inches
Content of organic matter in the upper 10 inches: 1.2 percent
Typical profile:
Ap--0 to 8 inches; fine sandy loam
Bk--8 to 30 inches; fine sandy loam
C--30 to 80 inches; fine sand

Egeland and similar soils
Extent: 30 to 50 percent of the unit
Geomorphic description:
Hill on outwash plain
Position on landform:
Summit
Backslope
Slope range: 2 to 6 percent
Surface layer texture: Sandy loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Well drained
Parent material:
Outwash
Flooding: None
Depth to wet soil moisture status: More than 6.7 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 6.4 inches
Content of organic matter in the upper 10 inches: 2.6 percent
Typical profile:
Ap--0 to 8 inches; sandy loam
Bw1,2--8 to 30 inches; sandy loam
Bw3--30 to 35 inches; loamy sand
Bk--35 to 48 inches; loamy fine sand
C--48 to 80 inches; loamy fine sand

J59A--Urness Mucky Silty Clay Loam, Sandy Substratum, Ponded, 0 To 1 Percent Slopes

Component Description

Urness, sandy substratum and similar soils
Extent: 80 to 95 percent of the unit
Geomorphic description:
Depression on outwash plain
Slope range: 0 to 1 percent
Surface layer texture: Mucky silty clay loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Very poorly drained
Parent material:
Lacustrine deposits over till
Flooding: None
Wet soil moisture status: At the surface all year
Ponding is shallowest (depth, months):
0.5 foot August
Ponding is deepest (depth, months):
3.0 feet March April May
Available water capacity to a depth of 60 inches: 12.0 inches
Content of organic matter in the upper 10 inches: 15.0 percent
Typical profile:
A1,A2--0 to 34 inches; mucky silty clay loam
Cg--34 to 66 inches; mucky silty clay loam
2Cg--66 to 80 inches; sand

J60B--Hattie-Audubon Complex, 1 To 4 Percent Slopes

Component Description

Hattie and similar soils
Extent: 35 to 55 percent of the unit
Geomorphic description:
Hill on till plain
Position on landform:
Summit
Shoulder
Slope range: 1 to 4 percent
Surface layer texture: Silty clay
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Moderately well drained
Parent material:
Till
Flooding: None
Wet soil moisture status is highest (depth, months):
2.5 feet April May
Wet soil moisture status is lowest (depth, months):
5.6 feet February August
Ponding: None
Available water capacity to a depth of 60 inches: 8.8 inches
Content of organic matter in the upper 10 inches: 3.0 percent
Typical profile:
Ap--0 to 8 inches; silty clay
Bwss--8 to 15 inches; silty clay
Bkss--15 to 22 inches; silty clay
C--22 to 80 inches; silty clay

Audubon and similar soils
Extent: 35 to 55 percent of the unit
Geomorphic description:
Hill on till plain
Position on landform:
Summit
Backslope
Slope range: 1 to 4 percent
Surface layer texture: Silty clay
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Moderately well drained
Parent material:
Till
Flooding: None
Wet soil moisture status is highest (depth, months):
2.5 feet April May
Wet soil moisture status is lowest (depth, months):
5.6 feet February August
Ponding: None
Available water capacity to a depth of 60 inches: 9.5 inches
Content of organic matter in the upper 10 inches: 4.0 percent
Typical profile:
Ap,A--0 to 14 inches; silty clay
Bkss--14 to 36 inches; silty clay
C--36 to 80 inches; silty clay

J60C--Hattie-Audubon Complex, 4 To 10 Percent Slopes

Component Description

Hattie and similar soils
Extent: 50 to 70 percent of the unit
Geomorphic description:
Hill on till plain
Position on landform:
Summit
Shoulder
Slope range: 4 to 10 percent
Surface layer texture: Silty clay
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Moderately well drained
Parent material:

Till
Flooding: None
Wet soil moisture status is highest (depth, months):
2.5 feet April May
Wet soil moisture status is lowest (depth, months):
5.6 feet February August
Ponding: None
Available water capacity to a depth of 60 inches: 8.8 inches
Content of organic matter in the upper 10 inches: 3.3 percent
Typical profile:
Ap--0 to 9 inches; silty clay
Bkss--9 to 19 inches; silty clay
C--19 to 80 inches; silty clay

Audubon and similar soils
Extent: 20 to 40 percent of the unit
Geomorphic description:
Hill on till plain
Position on landform:
Summit
Backslope
Slope range: 4 to 10 percent
Surface layer texture: Silty clay
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Moderately well drained
Parent material:
Till
Flooding: None
Wet soil moisture status is highest (depth, months):
2.5 feet April May
Wet soil moisture status is lowest (depth, months):
5.6 feet February August
Ponding: None
Available water capacity to a depth of 60 inches: 9.3 inches
Content of organic matter in the upper 10 inches: 3.4 percent
Typical profile:
Ap--0 to 8 inches; silty clay
Bkss--8 to 34 inches; silty clay
C--34 to 80 inches; silty clay

J61A--Svea Loam, 1 To 3 Percent Slopes, Bouldery

Component Description

Svea, bouldery and similar soils
Extent: 80 to 95 percent of the unit
Geomorphic description:
Swale on terrace
Flat on terrace
Slope range: 1 to 3 percent
Surface layer texture: Loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Moderately well drained
Parent material:
Till
Flooding: None
Wet soil moisture status is highest (depth, months):
2.5 feet April
Wet soil moisture status is lowest (depth, months):
More than 6.7 feet February August
Ponding: None
Available water capacity to a depth of 60 inches: 11.1 inches
Content of organic matter in the upper 10 inches: 6.5 percent
Typical profile:
A1,A2--0 to 10 inches; loam
Bw--10 to 23 inches; clay loam
Bk--23 to 60 inches; loam
C--60 to 80 inches; loam

J62C--Buse-Barnes Complex, 2 To 12 Percent Slopes, Very Bouldery

Component Description

Buse, very bouldery and similar soils
Extent: 35 to 55 percent of the unit
Geomorphic description:
Hill on terrace
Position on landform:
Summit
Shoulder
Slope range: 2 to 12 percent
Surface layer texture: Loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Well drained
Parent material:
Till
Flooding: None
Depth to wet soil moisture status: More than 6.7 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 10.4 inches
Content of organic matter in the upper 10 inches: 1.7 percent
Typical profile:
A--0 to 8 inches; loam
Bk--8 to 24 inches; loam
BC,C--24 to 80 inches; loam

Barnes, very bouldery and similar soils
Extent: 20 to 30 percent of the unit
Geomorphic description:
Hill on terrace
Position on landform:
Summit
Backslope
Slope range: 6 to 12 percent
Surface layer texture: Loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Well drained
Parent material:
Till
Flooding: None
Depth to wet soil moisture status: More than 6.7 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 10.8 inches
Content of organic matter in the upper 10 inches: 3.5 percent
Typical profile:
A1,A2--0 to 15 inches; loam
Bw--15 to 22 inches; loam
Bk--22 to 50 inches; loam
C--50 to 80 inches; loam

Hokans and similar soils
Extent: 10 to 20 percent of the unit
Geomorphic description:
Hill on terrace
Position on landform:
Backslope
Summit
Slope range: 2 to 6 percent
Surface layer texture: Loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Well drained
Parent material:
Till
Flooding: None
Wet soil moisture status is highest (depth, months):
3.9 feet April
Wet soil moisture status is lowest (depth, months):
More than 6.7 feet January February July August September
Ponding: None
Available water capacity to a depth of 60 inches: 10.8 inches

Content of organic matter in the upper 10 inches: 4.5 percent
Typical profile:
Ap,A--0 to 15 inches; loam
Bw--15 to 22 inches; loam
Bk--22 to 40 inches; loam
C--40 to 80 inches; loam

J62F--Buse-Barnes Complex, 12 To 40 Percent Slopes, Very Bouldery

Component Description

Buse, very bouldery and similar soils
Extent: 40 to 60 percent of the unit
Geomorphic description:
Hill on terrace
Position on landform:
Summit
Shoulder
Backslope
Slope range: 12 to 40 percent
Surface layer texture: Loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Well drained
Parent material:
Till
Flooding: None
Depth to wet soil moisture status: More than 6.7 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 10.4 inches
Content of organic matter in the upper 10 inches: 1.5 percent
Typical profile:
A--0 to 7 inches; loam
Bk--7 to 44 inches; loam
C--44 to 80 inches; loam

Barnes, very bouldery and similar soils
Extent: 30 to 50 percent of the unit
Geomorphic description:
Hill on terrace
Position on landform:
Summit
Backslope
Slope range: 12 to 40 percent
Surface layer texture: Loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Well drained
Parent material:
Till
Flooding: None
Depth to wet soil moisture status: More than 6.7 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 10.6 inches
Content of organic matter in the upper 10 inches: 3.5 percent
Typical profile:
A--0 to 12 inches; loam
Bw--12 to 19 inches; loam
Bk--19 to 33 inches; loam
C--33 to 80 inches; loam

J63A--Ortonville-Vallers-Parnell, Depressional Complex, 0 To 3 Percent Slopes

Component Description

Ortonville and similar soils
Extent: 35 to 55 percent of the unit
Geomorphic description:
Knoll on moraine
Slope range: 1 to 3 percent
Surface layer texture: Loam

Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Moderately well drained
Parent material:
Till
Flooding: None
Wet soil moisture status is highest (depth, months):
2.5 feet April
Wet soil moisture status is lowest (depth, months):
More than 6.7 feet February August
Ponding: None
Available water capacity to a depth of 60 inches: 9.4 inches
Content of organic matter in the upper 10 inches: 4.8 percent
Typical profile:
Ap--0 to 8 inches; loam
Bk--8 to 24 inches; stratified sandy loam to loam to silt loam
C--24 to 80 inches; stratified sandy loam to loam to silt loam

Vallers and similar soils
Extent: 25 to 45 percent of the unit
Geomorphic description:
Drainageway on moraine
Flat on moraine
Rim on depression on moraine
Slope range: 0 to 2 percent
Surface layer texture: Loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Poorly drained
Parent material:
Till
Flooding: None
Wet soil moisture status is highest (depth, months):
0.5 foot April
Wet soil moisture status is lowest (depth, months):
3.3 feet February August
Ponding: None
Available water capacity to a depth of 60 inches: 10.8 inches
Content of organic matter in the upper 10 inches: 6.5 percent
Typical profile:
Ap--0 to 10 inches; loam
Bkg--10 to 29 inches; loam
Cg--29 to 80 inches; loam

Parnell, depressional and similar soils
Extent: 15 to 25 percent of the unit
Geomorphic description:
Depression on moraine
Slope range: 0 to 1 percent
Surface layer texture: Silty clay loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Very poorly drained
Parent material:
Till
Flooding: None
Wet soil moisture status is highest (depth, months):
At the surface March April
Wet soil moisture status is lowest (depth, months):
2.0 feet February August
Ponding does not occur (months):
January February May June July August September October
November December
Ponding is deepest (depth, months):
1.0 foot April
Available water capacity to a depth of 60 inches: 10.4 inches
Content of organic matter in the upper 10 inches: 8.0 percent
Typical profile:
A1,A2--0 to 22 inches; silty clay loam
Btg--22 to 55 inches; silty clay
BCg--55 to 80 inches; silty clay loam

J64A--Quam Silty Clay Loam, 0 To 2 Percent Slopes

Component Description

Quam and similar soils
Extent: 80 to 95 percent of the unit
Geomorphic description:
Drainageway on till plain
Flat on till plain
Slope range: 0 to 2 percent
Surface layer texture: Silty clay loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Poorly drained
Parent material:
Lacustrine deposits
Flooding: None
Wet soil moisture status is highest (depth, months):
0.5 foot April
Wet soil moisture status is lowest (depth, months):
3.3 feet February August
Ponding: None
Available water capacity to a depth of 60 inches: 11.5 inches
Content of organic matter in the upper 10 inches: 10.2 percent
Typical profile:
Ap--0 to 9 inches; silty clay loam
A--9 to 60 inches; silty clay loam
Bg--60 to 68 inches; silty clay loam
2Cg--68 to 80 inches; loam

J65A--Shakopee Silty Clay, 0 To 2 Percent Slopes

Component Description

Shakopee and similar soils
Extent: 80 to 95 percent of the unit
Geomorphic description:
Rim on depression on outwash plain
Drainageway on outwash plain
Flat on outwash plain
Slope range: 0 to 2 percent
Surface layer texture: Silty clay
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Poorly drained
Parent material:
Lacustrine deposits over outwash
Flooding: None
Wet soil moisture status is highest (depth, months):
0.5 foot April
Wet soil moisture status is lowest (depth, months):
2.0 feet August
Ponding: None
Available water capacity to a depth of 60 inches: 5.5 inches
Content of organic matter in the upper 10 inches: 5.8 percent
Typical profile:
Ap--0 to 9 inches; silty clay
A--9 to 15 inches; silty clay
Bkg--15 to 38 inches; silty clay
2C--38 to 80 inches; sand

J66A--Emrick Loam, 1 To 3 Percent Slopes

Component Description

Emrick and similar soils
Extent: 75 to 95 percent of the unit
Geomorphic description:
Swale on moraine
Flat on moraine
Slope range: 1 to 3 percent
Surface layer texture: Loam
Depth to restrictive feature:

Very deep (more than 60 inches)
Drainage class: Moderately well drained
Parent material:
Till
Flooding: None
Wet soil moisture status is highest (depth, months):
2.5 feet April
Wet soil moisture status is lowest (depth, months):
More than 6.7 feet February August
Ponding: None
Available water capacity to a depth of 60 inches: 10.3 inches
Content of organic matter in the upper 10 inches: 5.5 percent
Typical profile:
Ap,A--0 to 15 inches; loam
Bw--15 to 25 inches; loam
Bk--25 to 36 inches; stratified sandy loam to loam to silt loam
C--36 to 80 inches; stratified sandy loam to loam to silt loam

J67A--Fordtown Loam, 1 To 3 Percent Slopes

Component Description

Fordtown and similar soils
Extent: 75 to 95 percent of the unit
Geomorphic description:
Flat on outwash plain
Swale on outwash plain
Slope range: 1 to 3 percent
Surface layer texture: Loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Well drained
Parent material:
Outwash
Flooding: None
Wet soil moisture status is highest (depth, months):
3.9 feet April
Wet soil moisture status is lowest (depth, months):
4.9 feet August September
Ponding: None
Available water capacity to a depth of 60 inches: 8.1 inches
Content of organic matter in the upper 10 inches: 5.0 percent
Typical profile:
Ap,A2--0 to 30 inches; loam
Bw--30 to 36 inches; loam
2C--36 to 80 inches; gravelly loamy sand

J68A--Kerkhoven-Friberg, Depressional Complex, 0 To 2 Percent Slopes

Component Description

Kerkhoven and similar soils
Extent: 45 to 65 percent of the unit
Geomorphic description:
Flat on moraine
Drainageway on moraine
Slope range: 0 to 2 percent
Surface layer texture: Loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Poorly drained
Parent material:
Till
Flooding: None
Wet soil moisture status is highest (depth, months):
0.5 foot April
Wet soil moisture status is lowest (depth, months):
3.3 feet February August
Ponding: None
Available water capacity to a depth of 60 inches: 11.2 inches
Content of organic matter in the upper 10 inches: 6.5 percent
Typical profile:

Ap--0 to 10 inches; loam
A--10 to 35 inches; loam
Bg--35 to 53 inches; loam
Bkg--53 to 63 inches; loam
Cg--63 to 80 inches; loam

Friberg, depressional and similar soils
Extent: 25 to 45 percent of the unit
Geomorphic description:
Depression on moraine
Slope range: 0 to 1 percent
Surface layer texture: Silt loam
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Very poorly drained
Parent material:
Till
Flooding: None
Wet soil moisture status is highest (depth, months):
At the surface March April
Wet soil moisture status is lowest (depth, months):
2.0 feet February August
Ponding does not occur (months):
January February May June July August September October
November December
Ponding is deepest (depth, months):
1.0 foot April
Available water capacity to a depth of 60 inches: 11.3 inches
Content of organic matter in the upper 10 inches: 7.5 percent
Typical profile:
Ap,A--0 to 23 inches; silt loam
Btg--23 to 47 inches; silty clay loam
Bkg--47 to 60 inches; loam
Cg--60 to 80 inches; loam

L33B--Kandiyohi Clay, 2 To 5 Percent Slopes

Component Description

Kandiyohi and similar soils
Extent: 80 to 90 percent of the unit
Geomorphic description:
Hill on till plain
Position on landform:
Summit
Backslope
Shoulder
Slope range: 2 to 5 percent
Surface layer texture: Clay
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Somewhat poorly drained
Parent material:
Lacustrine deposits over till
Flooding: None
Wet soil moisture status is highest (depth, months):
1.5 feet April May
Wet soil moisture status is lowest (depth, months):
4.9 feet February August
Ponding: None
Available water capacity to a depth of 60 inches: 10.0 inches
Content of organic matter in the upper 10 inches: 5.5 percent
Typical profile:
Ap--0 to 10 inches; clay
Bw--10 to 23 inches; clay
Bkg--23 to 64 inches; clay loam
BCg--64 to 80 inches; clay loam

L34A--Cosmos Silty Clay, 0 To 2 Percent Slopes

Component Description

Cosmos and similar soils
Extent: 75 to 95 percent of the unit
Geomorphic description:
Flat on till plain
Drainageway on till plain
Slope range: 0 to 2 percent
Surface layer texture: Silty clay
Depth to restrictive feature:
Very deep (more than 60 inches)
Drainage class: Poorly drained
Parent material:
Till
Flooding: None
Wet soil moisture status is highest (depth, months):
0.5 foot April May
Wet soil moisture status is lowest (depth, months):
2.6 feet February August
Ponding: None
Available water capacity to a depth of 60 inches: 9.5 inches
Content of organic matter in the upper 10 inches: 6.0 percent
Typical profile:
Ap,A--0 to 15 inches; silty clay
Btg--15 to 30 inches; silty clay
Btkg--30 to 36 inches; silty clay
2Bkg--36 to 80 inches; clay loam

M-W--Water, Miscellaneous

Component Description

Water, miscellaneous
Extent: 100 percent of the unit

W--Water

Component Description

Water
Extent: 100 percent of the unit
Ponding: None